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KANSAS STUDIES IN EDUCATION v.1 #3

THE RESULTS OF INSTRUCTION

—IN—

DIFFERENT TYPES OF ELEMENTARY SCHOOLS IN STATE OF KANSAS

1921-22

COMMITTEE WHICH CONDUCTED STUDY:

F. P. OBRIEN, CHAIRMAN

D. A. WORCESTER E. N. MENDENHALL

PUBLISHED AS A JOINT BULLETIN OF

THE UNIVERSITY OF KANSAS
THE STATE TEACHERS COLLEGE OF EMPORIA
THE STATE TEACHERS COLLEGE OF PITTSBURG

K. S. T. C. PRESS, PITTSBURG, KANSAS

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REPORT OF A SURVEY MADE FOR THE
STATE SCHOOL CODE COMMISSION

1921-22

SURVEY COMMITTEE WHICH CONDUCTED THE STUDY:

F. P. OBRIEN, *University of Kansas, Chairman*
D. A. WORCESTER, *State Teachers College, Emporia*
E. N. MENDENHALL, *State Teachers College, Pittsburg*

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INTRODUCTION

A State School Code Commission was established by act of the Kansas Legislature in March, 1921, "to make a study of the school laws of Kansas, the school system of Kansas and other states, and the needs of Kansas in educational matters; and to present to the next legislature a report containing recommendations * * * which will promote the cause of education in Kansas."

The Commission thus authorized was composed of the following: Senators Sheffield Ingalls, Paul H. Kimball, J. M. Johnson and M. V. B. Van DeMark, Representatives Ida M. Walker and Minnie J. Grinstead, and Professor C. E. Rarick.

The members of this Commission soon reached the highly commendable decision that any legislation worthy of serious consideration should be based upon full information which should at the same time be definite, accurate, convincing and up-to-date. Accordingly several types of studies were designated as of especial importance for the use of this Commission in shaping its recommendations.

This report deals with one of the studies which the Commission needed, to secure evidence on the results of instruction in the different types of elmentary schools that are now found in the state. The following report presents the evidence collected and prepared for that purpose.

From the very nature of this problem it was bound to be one of considerable proportions, involving time, special training and expense. Since funds were not provided by the legislature for conducting this essential work of the commission, it was the timely cooperation of the State Teachers' Association that supplied the money for the task. But only a portion of the actual expenses incurred had to be met in this way due to the splendid cooperation of the State Institutions which participated in developing this project.

The committee selected for directing this important inquiry was composed of Prof. Dean A. Worcester of the Emporia State Normal School.* Prof. E. N. Mendenhall of the Pitsburg State Normal School,* and Prof. F. P. OBrien of the University of Kansas, who was made chairman of the committee. These men were then given full responsibility as to the scope of the work and the procedure to be followed in the gathering of this information. The State Normal School at Hays also participated in accomplishing the work as outlined by this committee.

It was early decided by the committee that no dependence could be placed on the usual pupil grades or school records for providing the information required. It seemed necessary to secure all facts first-hand and in a definitely prescribed manner, by means of standardized objective tests given to the pupils and by means of uniform question blanks for the teachers. Groups of es-

*The names of these normal schools have more recently been changed to Teachers Colleges.

pecially trained advanced students or faculty members working with each of the members of this committee visited the schools, gave the tests, scored and tabulated the results. Two of the largest schools gave the tests to their own pupils according to the directions provided.

The especial significance of this report consists in the fact that no such extensive, definite and scientifically impartial information has previously been made available for this State concerning the effectiveness of results secured in the different types of elementary schools in Kansas, for which a total of approximately 11,000 teachers are employed at a total approximate cost of $8,800,000 each year.

The committee have worked as a unit in conducting the study. Several committee conferences were made the basis of agreement and unified action in the collection and analysis of the facts. While this report has been organized and written by the chairman of the committee, it has been subjected to the criticism of the other members of the committee and has received their approval as the committee's report.

Measurement of the Results of Instruction in Elementary Grades in Different Types of Schools in Kansas

In general the value of the instruction in any school or type of school may be determined by the kind of results secured. The results in the fundamental subjects of the elementary school may be quite adequately measured and compared by simple objective, standardized tests given in the same way to all pupils in the schools tested. Such a method of measuring the effectiveness of instruction in the elementary schools of this State has been employed in the study and comparison of school work which are reported in the following pages. The school grades from the third to the eighth, inclusive, furnish the data for the study which is reported here.

Standard tests were used for measuring the achievements of the children in reading, spelling, handwriting, written composition, arithmetic reasoning and arithmetic fundamentals. The same tests were used and in the same identical manner, so far as that was possible, in all the schools tested for securing the instruction results reported here. *The purpose of these tests was to find out quite definitely what the pupils are getting from their schooling.* In other words, are these pupils learning to read, spell, add, subtract, etc. in a satisfactory manner and at a reasonable rate of progress?

All testing and scoring of results was done by members of the committee or by trained assistants working under their direction and guided by uniform instructions which had been prepared by the committee. The teachers in the schools tested were present during the testing and cooperated so far as possible but assumed no responsibility in the conduct of the tests. The tests used were the same in all schools and for the most part the same order was followed in the giving of the tests. To avoid danger of fatigue the testing was not continued for more than an hour without intermission.

The pupils responded very well to the testing. They showed a fine attitude and were interested in both the kind of tests and the mode of procedure. There was no apparent evidence of nervousness or excitement, but they plainly enjoyed the whole exercise in the spirit of an earnest game. Thus it was made highly probable that the conditions were as favorable for the pupils as they could well be in such tests.

It is evident from the facts presented in these pages that many of the rural schools are producing very unsatisfactory results, that the teaching is of a poor quality, and that the pupils are learning little as compared with the results secured in better schools. Such schools are falling far short of accomplishing the educational function for which they are established. They are not only inferior as judged by the result of instruction but are also expensive on the per pupil basis as is pointed out later in this report. That the proper type of education is not being provided by the one-teacher schools of the State is shown in a convincing manner by a comparison of their instruction results with standard scores and with the scores of the pupils in graded schools.

In addition to measuring the results of instruction in these subjects, *attention was also devoted to the education, experience and salaries of the teachers*

in these schools, their tenure in the positions held and the number of pupils and daily class periods taught. The teaching facilities provided as represented by library and supplementary books for each school were also investigated and reported.

The scope of this entire investigation necessarily had to be limited, because the great size of the task of making such a study of instruction and the restricted time available for its accomplishment have made it impossible to examine any large proportion of the elementary schools of the State. *However, a fair representation of the several types of schools, comprising a total of more than four thousand pupils, found in seventeen different counties widly distributed over the State, would seem to give a fair statement with reference to the pupil achievements in these types of schools for the State as a whole.* The tests were given in practically all of these schools between December 15th and February 15th, 1921-1922.

Table I shows the number of pupils tested in each type of school studied and also the counties which were represented in this survey of pupil achievements in elementary school subjects.

TABLE I

The Number, Type and Location of Elementary Schools Included in This Report. (Grades III to VIII)

Counties of Kansas Represented	One-Teacher Schools		Two-Teacher Schools		City Graded Schools 3rd Class		City Graded Schools 2nd Class		Total Pupils Tested
	No. of Schls.	No. of Pupils	No. of Schs.	No. of Pupils	No. of Schs.	No. of Pupils	No. of Schs.	No. of Pupils	
Douglas	14	202			1	51			253
Ellis	8	92	1	28	1	170			290
Decatur					1	76			76
Jefferson	13	205	3	74	1	75			354
Johnson	8	91			1	64			155
Kingman							1	315	315
Leavenworth	2	18			1	64			82
Rooks	12	88			1	167			255
Seward	9	121					1	260	381
Cloud							1	490	490
Cherokee	4	68							68
Crawford	2	26	1	63			1	370	459
Labette	4	44	1	45					89
Montgomery	5	76	1	29					105
Lyons	6	81			1	126			207
Greenwood	6	74			1	114			188
Marion	5	46	2	51	1	101	1	279	477
Totals	98	1232	9	290	10	1008	5	1714	4244

In reading this table it is evident that in Douglas County 202 pupils in 14 one-teacher schools were tested and one third-class city in the same county having 51 pupils in the grades above the third was also tested. A total of 17 counties and 4244 pupils are reported in this table. The 10 cities of the third class included Perry, Lecompton, Ellis, DeSoto, Hartford, Linwood, Stockton, Burns, Madison and Oberlin. The 5 cities of the second class are Kingman, Girard, Liberal, Florence and Concordia. In a few of these schools all of the tests previously listed were not given as is pointed out later. It is on the data secured from testing these pupils in the school subjects indicated that the tables of pupil achievements as reported in Tables 101-122, are based.

SPELLING

The ability of pupils to spell is easily tested by requiring them to spell the words in a list whose difficulty is known. To find out how well these elementary schools are teaching spelling the first 20 words in the 'W' list of the Buckingham-Ayres Spelling Scale were clearly pronounced (each word pronounced twice) for the pupils in the 6th 7th and 8th grades The words were pronounced slowly and distinctly as the pupils were asked to write them on paper.

The words in this list are all common ones, frequently used in everyday life. They should not have been unfamiliar or unusually hard for pupils in the upper elementary grades. While they are not especially difficult, neither are they especially easy. The following words were used in the test:

organization	emergency	appreciate	grease
cordially	extreme	practical	consequence
athletic	character	separate	February
antique	bicycle	calendar	proceed
disease	fatigue	foreigners	sincerely

It is not expected that pupils in the elementary grades will spell all of these words correctly. The general standards for this spelling list require that on an average sixth grade pupils should spell 8 of the 20 words correctly; seventh grade pupils should spell 11 of the 20; and eighth grade pupils should spell 14 of the 20 words. This spelling test was taken by 630 boys and girls in the one-teacher rural schools, by 480 in the graded schools of cities of the third class, by 836 in cities of the second class, and by 139 in two-teacher schools.

The results of the spelling test are presented here. *In the one-teacher schools pupils on an average spelled* 3 *words correctly in the sixth grade,* 5 *in the seventh and* 9 *in the eighth. This record is far from satisfactory. It is* 62 *per-cent below the standard in the sixth grade,* 54 *per-cent below in the seventh and* 43 *per-cent below in the eighth. The record is markedly better for each of the other types of schools as is shown in table II which follows.* These records are on an average three words better for the graded schools than for the one-teacher schools. The average (median)* record for sixth grade pupils in the graded schools of the second class cities is a hundred per-cent better than for the same grade in the one-teacher schools.

The pupils in the sixth grade of the graded schools spelled as well as or better on an average than did seventh grade pupils in the one-teacher school. The graded school pupils were quite obviously about one school year ahead of pupils in the ungraded schools in the subject of spelling. (See Tables 101-104, Appendix).

The following table presents these facts in condensed form, showing the median* number of words spelled so as to permit of comparison. All pupils were given the same list of words and these 20 words were approximately equal in difficulty.

TABLE II

Median* Spelling Scores—By Grades and Types of School

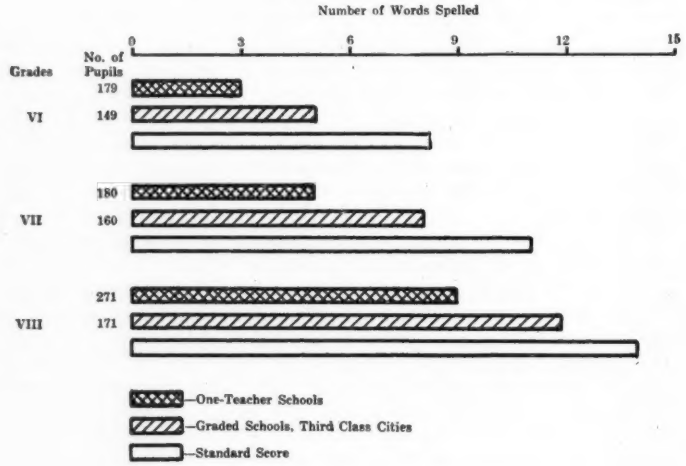
(Showing Number of Words Spelled Correctly in List of 20)
(Ayres 'W' List)

Grades ..... VI Standard Scores .... (8 words) Type of School—	VII (11)	VIII (14)	No. Pupils
1-Teacher 3	5	9	630
2-Teacher 4	7	12	139
3rd Cl. City 5	8	12	480
2nd Cl. City 6	8	12	836

This table states that all sixth grade pupils in one-teacher schools had a median of 3 words spelled correctly. The median in the seventh grade was 5 words for the same schools, etc.

DIAGRAM I

Median Spelling Results In One-Teacher Schools Compared With Standards and Scores in Graded Schools



* The median is a form of average. It represents the middle value when all the measures are arranged in the order of their values. As many cases are larger as are smaller. For example, 8 is the median of 6, 8 and 12.

READING

Most of the work of the elementary and later school years is conditioned by and dependent upon the pupil's ability to read well and to understand the subject matter pertaining to his age and grade in school. Much of the reading done both in school and in later life is silent reading. A poor reader is unquestionably greatly handicapped in school and out of school with reference not only to the getting of knowledge but also the reading for recreation or enjoyment. This subject is generally regarded as the most fundamental of all the school subjects because it is the most essential tool for the pupil's school advancement and general educational growth.

For measuring the results of instruction in reading the pupil's ability to do silent reading was tested by the 'Burgess Scale for the Measurement of Silent Reading'. Each pupil was provided with a printed sheet containing 20 interesting paragraphs, each paragraph relating to a simple illustration which immediately preceded it. Provided with definite instructions, the pupils were given five minutes in which to read as many of these paragraphs as they could read in that period. A simple response with a pencil to each paragraph was necessary to show that the individual had read it correctly. Both speed and accuracy were in this way made factors in the pupil's score. Pupils like this test; they enter into it heartily and are therefore disposed to do as well as they know how to do.

Table III, which follows, shows that in each type of school there was a continuous advancement in scores from the third through the eighth grade. But it is also evident from this table that grade by grade the results for the ungraded school were almost uniformly inferior to those in the other types of schools. The results show that in the subject of reading the pupils in the graded schools in cities of the second or third class average a full year in advance of the boys and girls in the one-teacher schools.

In fact, the fifth grade pupils in cities of the second class read as many paragraphs correctly on the average as did the seventh grade pupils in the ungraded schools. Likewise the sixth grade pupils in the former schools were nearly two years ahead of the sixth grade pupils in the one-teacher schools. This superiority was true in spite of the fact that all ninth year pupils in one-teacher schools were grouped with the eighth grade in table III, and in the other tables that follow.

TABLE III

Median Scores in Silent Reading Showing Number of Paragraphs Read Correctly, by Grades and Types of School

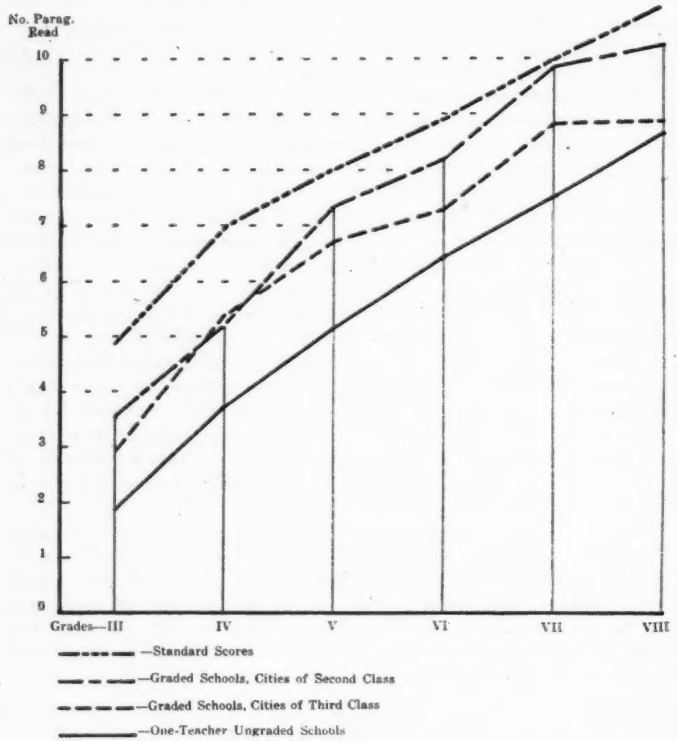
(Burgess Scale)

Type of School .... Grades III	IV	V	VI	VII	VIII	Total Pupils
1-Teacher Sch. 1.9	3.7	5.2	6.38	7.4	8.7	1091
2-Teacher Sch. 2	3.37	5.0	6.0	7.75	9.	216
3rd Cl. City 2.9	5.32	6.76	7.3	8.8	8.9	1008
2nd Cl. City 3.46	5.28	7.29	8.17	9.89	10.22	1715
Standard Scores 5	7	8	9	10	11	

This table states that third-grade pupils in one-teacher schools read an average of 1.9 paragraphs correctly, fourth grade pupils 3.7 paragraphs, etc. The standard performance for these school grades in the Burgess reading test is: third grade 5 paragraphs, fourth 7, fifth 8, sixth 9, seventh 10 and eighth grade 11 paragraphs. These standards were determined by giving the test to so many thousands of pupils that it has become known how many paragraphs the pupils of any grade should be able to read correctly.

DIAGRAM II

Representing Median Reading Scores, By Grades—(Burgess Scale)



Not only did the pupils in the ungraded schools have a smaller score in every grade, based on the number of paragraphs read correctly, but they also had a larger percentage of paragraphs read incorrectly in proportion to their own total of paragraphs attempted than did the pupils in the graded schools. This difference ran above ten percent in some grades. The meaning of these facts is that in addition to reading slower the pupils in one-teacher schools generally read more inaccurately. (See fuller statement of reading scores, tables 105-108).

ARITHMETIC

What do the children get from the school instruction in arithmetic? The ability of pupils to handle the fundamental operations of arithmetic with reasonable speed and accuracy is generally regarded as one of the most important results expected of the elementary school. To measure the efficiency with which the arithmetic processes are taught in these schools the pupils were given the four Courtis Standard Tests in addition, subtraction, multiplication and division. These tests are designed to measure speed and accuracy in the fundamental operations. The tests consist of a series of 24 problems of similar difficulty in addition, 24 in subtraction, 25 in multiplication, and 24 in division, with definite time limits prescribed for each. Printed copies of these tests were placed in the hands of the pupils and the instructions read aloud.

The results of these arithmetic tests are presented in table IV and they show that the poorest results in each of the processes are found in the one-teacher rural schools. This statement holds true for almost every grade tested in each of the four tests. The Courtis standard score for the third grade is 4 problems worked correctly in addition, 5 in subtraction; for the fourth grade it is 6 problems in multiplication and 4 in division. These standards are averages based upon the results of many thousands of pupils who have taken these same tests. One half of the pupils should surpass such standards.

Thus it is evident that there is no grade in the one-teacher schools which averaged up to the third grade standard in addition as determined by the author of the test. The same thing may be said for the fourth grade in multiplication and division. Even in the third class cities it is found that only thirty-two percent of all the pupils in these grades reached the standard for third grade pupils in addition. But on an average, the pupils in the ungraded schools were between one and two years behind the pupils in the graded schools in the fundamentals of arithmetic.

TABLE IV

Median Scores in Courtis Arithmetic Tests
By Grades and Types of School

(A) Addition Grades	III	IV	V	VI	VII	VIII
1-Teacher	.7	1.1	1.6	2.4	3.0	3.7
2-Teacher	.9	1.4	2.3	3.0	3.3	4.5
3rd Class City	.8	1.5	2.4	2.8	4.0	4.7
2nd Class City	.8	1.9	1.9	3.4	4.0	5.0
Standard Scores	4	6	8	10	11	12

(B) Subtraction	III	IV	V	VI	VII	VIII
1-Teacher	.6	1.5	2.3	3.3	5.1	6.7
2-Teacher	.7	1.8	2.7	4.8	6.4	8.0
3rd Class City	.8	2.1	3.6	5.5	6.2	7.2
2nd Class City	.7	2.2	3.1	4.8	6.5	8.6
Standard Scores	5	7	9	11	12	13

(C) Multiplication					
1-Teacher	.8	1.7	2.9	3.7	5.
2-Teacher	.9	2.3	3.4	3.7	7.4
3rd Class City	1.6	2.9	3.5	5.1	5.9
2nd Class City	.9	2.1	3.6	4.7	6.4
Standard Scores	6	8	9	10	11

(D) Division					
1-Teacher	.6	.7	1.0	1.9	3.9
2-Teacher	.6	.7	1.6	3.3	5.5
3rd Class City	.6	.9	2.5	3.5	4.7
2nd Class City	.6	.9	5.2	3.6	5.5
Standard Scores	4.	6	8	10	11

This table discloses the fact that the third grade did not average one problem worked correctly in any of the four types of schools. With one excep-

tion the fourth grade in none of these types of schools averaged as high as one problem correct in multiplication or division. It should be borne in mind in this connection that in some of the city schools reported half-year promotions caused pupils to be classified in grades to which they had just been promoted. Yet the inferiority of all these grades and types of schools in the processes of arithmetic is excessive and indefensible. (See table 109-112 for complete distribution of arithmetic scores).

The next table will furnish a basis for comparison with the achievements of pupils reported for certain other schools in which the same tests have been used. The facts in this table make it seem evident that the standards indicated above are not unattainable in an efficient school system.

TABLE V

Scores in Courtis Arithmetic Tests Reported For Other Cities

	Addition			Subtraction			Multiplication			Division		
Grades	IV	V	VI	IV	V	VI	IV	V	VI	IV	V	VI
Hackensack	3.0	5.4	7.1	3.0	8.2	10.8	2.4	6.2	6.8	1.0	5.0	6.8
Boston	5.2	6.7	8.3	6.4	7.7	9.6	4.0	5.6	7.2	3.0	4.9	7.5
Av. City	4.7	6.0	7.2	5.9	7.5	8.8	4.2	5.6	7.1	2.6	4.7	7.1

Since all the arithmetic scores are merely statements of the number of problems correct, *the arithmetic results in the ungraded rural schools appear much more unsatisfactory when the degree of accuracy is taken into account. The pupils in these schools did not reach an average of 50 percent accuracy in addition problems for any of the school grades.* That means that in no grade did the pupils succeed in adding correctly one out of every two of the problems attempted.

Below the sixth grade they did not on an average add correctly one in three of the problems completed. The percentage of accuracy was uniformly lower for the one-teacher school in all grades in each of the four operations than for the same grades in the graded schools, with only one lone exception—the fourth grade in division. The difference in accuracy in some instances was more than 20 percent between the one-teacher and graded schools, but all were lamentably below standard.

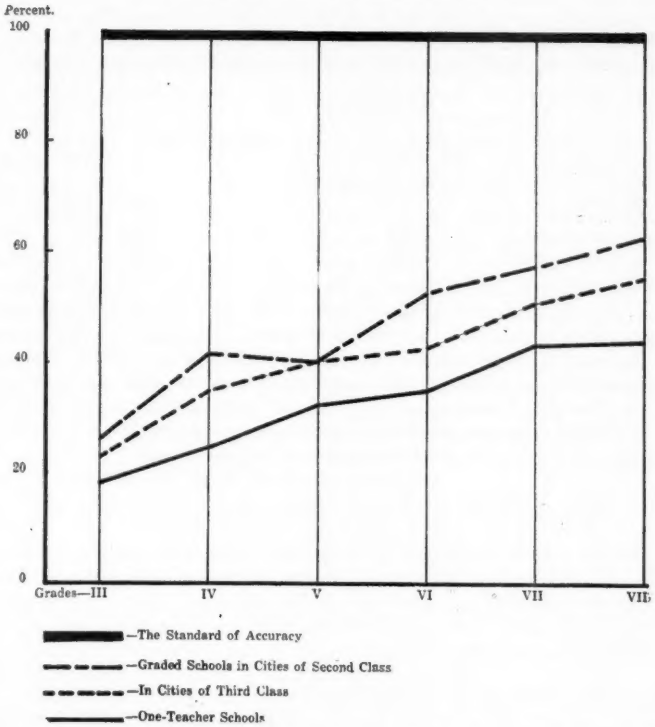
The full meaning of the results as stated becomes apparent only when both facts are considered; first, that the pupils in these schools were far below their grade in the number of problems worked; and second, that they were so unreliable in results obtained that for some grades an average of only one in four or one in five problems were correct. The approved standard of accuracy in business affairs is a hundred percent. The pupils in these schools were in general highly inaccurate and unreliable. School standards in accuracy of computation should not be regarded as satisfactory unless they closely approach 100 percent at least in all the upper grades.

This diagram shows how far below the standard of accuracy in addition the pupils are grade by grade in these different types of elementary schools. A similar diagram to represent accuracy of computation in any of the other fundamental processes of arithmetic would show a similar situation, excepting that the upper three grades had a much higher percentage of accuracy in the other processess than they had in addition. But the results

for the one-teacher schools continue to be far below those for the graded schools as is true for the accuracy scores represented above. Consult facts in table 131 of this report.

DIAGRAM III

Percentages of Accuracy in Courtis Addition Test



Reference to table 109-112 will show that one in three of all the pupils tested in one-teacher-schools made a 0 score in addition. Twenty-seven percent of the pupils in two-teacher and third class city schools did the same. In cities of the second class twenty-two percent scored 0. In other words, such a percentage of pupils did not work one addition problem correctly in the eight minutes allowed. The percentages scoring zero in subtraction were lower than in addition, the highest record being twenty-eight percent, for the ungraded schools.

The zero record of performance for the fourth grade in division ranged from forty-seven percent of the pupils of that grade in one-teacher schools to thirty-one percent in cities of the second class. *There were many pupils in the seventh and eighth grades in each type of school who did not do one division problem correctly in the eight minutes period. This number was*

20 percent of all seventh and eighth grade pupils in the one-teacher schools. The results of instruction in arithmetic form a serious indictment of the work of these elementary schools. Apparently these communities are conducting schools which do not secure effective results in arithmetic.

The Monroe Reasoning Test in arithmetic, which consists of a series of reasoning problems, was also given to the pupils in a portion of the one-teacher schools and in some graded schools in cities of the third class. The selection of these schools was determined chiefly by the amount of time available for the testing. The results of this reasoning test are shown in the table following:

TABLE VI

Median Scores in Arithmetic Reasoning For One-Teacher and Graded Schools.

(Monroe Reasoning Tests)

Grades / Type of Schools	IV-V	VI-VII	VIII	Total Pupils Tested
1-Teacher School	18.3	19.7	20.3	186
3rd Cl. City School	19.0	29.5	26.5	263

Here it is plainly evident that the results in the graded school show what appears to be the influence of the more effective teaching in those schools with reference to their ability to reason on problems in arithmetic. Both correct principle and correct result were counted in a definite manner for each problem in making the scores reported in the table above. That means that pupils were given credit for the right procedure even though the computation on the problems was incorrect. See tables 113 and 114 for complete distribution of scores in arithmetic reasoning tests.

WRITTEN COMPOSITION

It is one of the primary functions of the elementary school to give instruction and training to pupils in the use of language for the expression of ideas. The results of instruction in the use of English as employed in written composition was one of the concerns of this study of instruction. Such language instruction is one of the regular elements of the elementary school curriculum and its results are subject to definite measurement.

In order to secure compositions from the pupils in these schools that the quality of the work might be measured, the children were asked to write for twenty minutes on "What I Would Like to Do Next Saturday". All the children in grades three to eight inclusive wrote such compositions. They were told to assume that they would have the necessary permission and all the money needed to do what they most wanted to do to have a good time for the day. The task then was to tell about it so as to make the story interesting for someone to read. The subject appealed to the pupils and they responded with willingness and enthusiasm.

For judging the pupil's achievements in composition the Willing Scale for Measuring Written Composition was used as a measuring device. It consists of a series of carefully graded compositions arranged in the order of their difficulty or value. The assigned values of these specimens, which range from 0 to 100, have been determined by scientific procedure and are stated on the scale for each of the sample compositions.

The value or merit of any composition was determined by having three trained judges, acting independently, compare it with the specimens on the scale and then give it the value assigned to that scale sample which it resembled most closely. *The thought or content value of the composition was considered of first importance and the form elements were regarded only in so far as they conditioned the thought expression or content value.* The average (median) of these three judgments for each of the compositions was regarded as the composition value or score and was so recorded.

The table following states the average (median) in each of the elementary school grades in written composition.

TABLE VII

Median Scores in Written Composition By Grades and Types of School. (Willing Scale)

Grades / Type of School	III	IV	V	VI	VII	VIII	Total Pupils
1-Teacher	16.5	21.	27.4	29.0	34.1	36.5	1232
2-Teacher	20.2	22.7	25.	26.7	33.5	38.8	290
3rd Cl. City	17.3	24.8	28.5	32.6	36.4	37.4	932
2nd Cl. City	16.6	28.0	30.7	39.8	43.	42.3	1344

Table VII shows that third grade pupils in the one-teacher schools had a median score of 16.5 in written composition. The average score of fourth grade pupils in this type of school was 21. There was no great or consistent

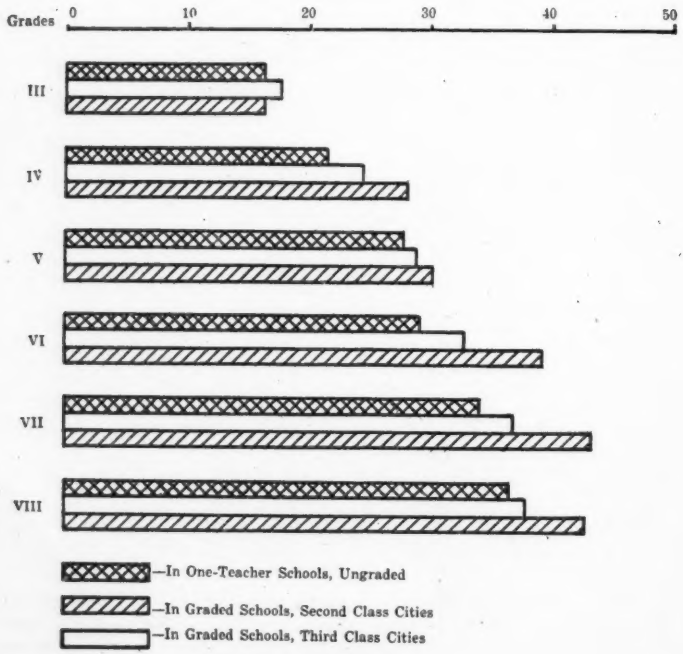
difference between the average pupil achievement in composition for the one-teacher and the two-teacher schools as reported here. ***But it is evident that the graded school pupils in cities of the third class had a higher average score in each of the six grades tested than did the ungraded school pupils.*** This difference was greatest in the upper grades, where it is found that the seventh grade in the graded school averaged as high as the eighth grade (including the ninth) in the one-teacher type of school.

Furthermore, *in second class city schools the pupils in the fourth and fifth grades were a full year ahead of pupils in one-teacher schools. In the sixth grade they were more than two years ahead in this subject.* One city of the second class did not report on composition work, but the results included a total of 1344 pupils for the other cities of this class.

It should be stated here that the highest of the grade averages for any type of school appearing in the table above do not represent what should be regarded as acceptable scores for the upper elementary grades in written English composition. *In fact, a score of* 40 *represents a rather ordinary sort of composition with no special merit or excellence.* Such a composition would not, for instance, be generally regarded as the kind of well thought out or well

DIAGRAM IV

Representing Median Scores in English Composition



expressed presentation of a subject that one expects to find in a good letter or the kind of definite and convincing statement that a well written class assignment paper should be.

The following composition written by a sixth grade boy, 13 years of age, and which was scored 40 by all three of the judges is a typical sample.

"What I Should like to do next Saturday To have some fun. I would get my skates sharpened and go iceskating and take some pickles buns and weanes and cookies and eat dinner and supper down there and play games skat down the river to the damn and then skate back and eat dinner then go up stream and skate all afternoon and when I would get up stream I would build a big fire and eat my lunch and then I would go home and chop my would and get my kinlen and coal in and then I would go to the show and then come home and go to bed."

The distribution of composition results for these pupils, as shown in tables 115-118 disclose how many of these children, in the several school grades, score below 20 on the Willing Scale. A score of 10 may be understood to indicate that the composition was practically valueless as a piece of composition. A score of 0 signifies that it was altogether meaningless. Yet approximately fourteen percent of the pupils in ungraded schools, fifteen percent in third class cities and thirteen percent in second class cities received scores which indicate that the compositions submitted by them were practically worthless.

HANDWRITING

In measuring the quality of the children's handwriting the compositions written by them were also scored with reference to the writing. The children were asked to write well so that the compositions could be easily read, but they were not informed that their writing would also be judged or scored. It was desired that the writing should be a normal sample of how well they write ordinarily when neither hurrying nor attempting exhibition work. Very few pupils wrote for the full twenty minutes allowed. Thus it would appear that they did not feel hurried or short of time.

The handwriting was judged chiefly with reference to its legibility. For this purpose the Ayres Handwriting Scale was employed. The scale is a series of handwriting samples with assigned values from 0 to 100. The judgments of three different experienced judges were secured on each pupil's handwriting by the process of comparing it with the samples on the scale and assigning the value of that sample which most nearly represented its degree of legibility. The average (median) of the three judgments was then recorded as the score for the individual's handwriting. The following table shows the average handwriting scores by grades for each of the different types of schools.

TABLE VIII

Median Scores in Handwriting by Grades and Type of School (Ayres Scale)

Grades / Type of School	III	IV	V	VI	VII	VIII	TOTAL PUPILS
1-Teacher	23.5	26.4	29.2	31.6	36.1	39.8	1232
2-Teacher	22.6	26.3	28.5	33.2	32.	39.2	290
3rd Cl. City	28.1	31.6	33.1	36.5	41.8	39.7	932
2nd Cl. City	30.6	34.1	34.3	47.3	44.6	40.9	1344
Standard scores		43	50	54	57.8	62.8	

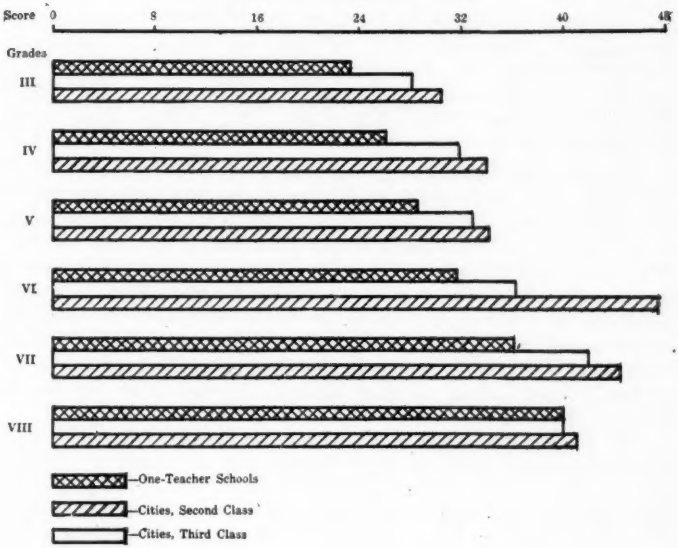
The average score in handwriting for third grade pupils in the one-teacher schools was 23.5; in the two-teacher schools it was 22.6, etc. In the one-teacher and two-teacher schools the median scores were similar. *In the graded schools in third class cities the pupils were more than a school grade ahead of pupils in the ungraded one-teacher schools. ..The pupils in second class cities were more than two school years in advance of those in one-teacher schools in the subject of handwriting. Yet not even in those schools having the highest median scores did the pupils closely approximate the standards for their grade* These standards are stated by the author of the scale and are based upon extended use of the scale.

It is evident that many of the scores in table VIII are more than 20 points below the standard score for the grade. It is also easily observed from tables 119-122 that in the total distribution of handwriting results for these pupils there were many low scores. Thirty percent of the one-teacher pupils scored 20 or below on this scale; the facts are similar for the two-teacher schools;

twelve percent of the third class city pupils and as many in the second class cities had scores equally low. A score of 20 or below on the Ayres Scale represents writing that is but partly legible. It means that even their names written in such handwriting could be read only with considerable difficulty, if at all. But pupils doing this quality of handwriting are found in practically all grades of both the graded and ungraded types of schools.

DIAGRAM V

Representing Median Scores in Handwriting



The scores of pupils in the one-teacher schools were inferior to those in either type of graded school for handwriting excepting in the eight grade. In that grade of the one-teacher schools there were many over-age pupils and a considerable number also who were actually ninth-year pupils.

AGE-GRADE DISTRIBUTION OF PUPILS

In the measurement and comparison of pupil achievements in these different types of schools, it is necessary to know how the several groups compare with reference to the ages of the pupils tested and how nearly alike is the distribution of pupils by grades in the several types of schools. Table IX shows the percentages of pupils distributed by school grades in each type of school.

TABLE IX

Distribution of Percentages of Total Pupils By Grades and Types of Schools.

Grades ..... Type of Schools	III	IV	V	VI	VII	VIII	Total Percent	Total Pupils
1-Teacher	16.1	16.8	16.	14.5	14.5	22.	99.9	1232
2-Teacher	14.8	19.3	17.9	19.	15.8	13.1	99.9	290
3rd Class City ..	15.5	17.7	15.2	16.	17.2	18.3	99.9	932
2nd Class City ..	15.9	18.8	16.5	16.7	17.	15.1	100	1714

It appears from the facts in this table that the greatest difference in grade distribution occurs in the eighth grade. The one-teacher schools had 22 percent of their pupils in that grade (which included about 40 ninth-year pupils in this type of school). The graded schools in the cities of the second class had 15 percent of their pupils in the same grade. *Thus it appears that the advantage of numbers in the highest grade lay with the ungraded school.* This large percentage was balanced by a smaller percentage of pupils in the sixth and seventh grades than is found in the graded schools. *An otherwise marked similarity is evident in the percentage distribution of pupils by grades in the different types of schools.* Complete age-grade distributions are reported in tables 123-126.

The percentage of pupils in each age group, for the different types of schools is shown in Table X, which follows. *The percentages for the age groups show but a slight difference in the four types of schools. In general the one-teacher and two-teacher schools had a slightly larger percentage of their pupils in the upper age groups than did the two types of graded schools.* In the former type of schools thirty-five percent of the pupils were thirteen years or older; in the two types of graded schools, thirty-three and thirty-two percent of the pupils were above the twelve years of age.

TABLE X

The Distribution of Percentages of Total Pupils by Age Groups and Types of Schools.

Ages ..... Type of Schools	7	8	9	10	11	12	13	14	15	16	17-or above
1-Teacher	1.	7.	12.	16.	14.6	13.7	14.9	10.2	7.	2.3	1.2
2-Teacher	1.	7.	10.	14.8	16.9	15.5	13.3	11.7	7.9	1.4	.3
3rd Class City	1.5	7.	12.6	17.2	13.0	15.7	14.5	10.1	5.2	1.7	1.3
2nd Class City	.7	8.	12.9	15.8	15.6	15.3	13.4	10.1	5.2	1.7	0.3

THE LENGTH OF SCHOOL YEAR

It may naturally be presumed that the length of the school year was a factor of influence on the achievements of pupils in different schools. It may even seem at first that the great advantage of the graded schools was chiefly due to the longer school year of nine months as compared with the seven and

eight months in the ungraded school. But it can be clearly demonstrated with the evidence at hand that this was not the chief nor perhaps a very important factor in determining those differences in pupil achievements which have been pointed out in the preceding pages and which disclose the inferiority of results in the ungraded rural school. *There are quite obviously other factors of much greater consequence than the length of school year.*

Of the 1232 pupils tested in the one-teacher rural schools, it happened that 334 were attending schools which had a seven-months term, 861 had eight months of school, and 37 were in nine-months schools. This situation permitted a comparison of scores to determine how much better were the results secured in the eight-month than in the seven-month schools. The number in the nine-month schools was too small to make possible a valid comparison. *The evidence which is available shows rather conclusively that the eight-month schools were not uniformly superior in the results secured, notwithstanding a 14 per-cent longer period of school each year which in 8 years adds the equivalent of an extra year in school. In the seventh and eighth grades there is a slight difference in favor of the eight-month schools in the subjects of reading, composition and handwriting, but in none of the lower grades was the difference so great or consistent as to be very convincing in any subject except reading.* Table XI presents the average (median) scores of these attendance groups by grades for purposes of comparison.

TABLE XI

Comparison of Median Scores by Grades for Pupils in Seven-month and Eight-month Ungraded Schools.

(A) Spelling Grades	III	IV	V	VI	VII	VIII	No. Pupils
7 Month-schools				3.7	4.3	10.	190
8 Month-schools				3.1	6.5	9.5	439
(B) Reading							
7 Month-schools	2.3	3.6	4.7	5.2	6.4	8.5	295
8 Month schools	1.8	3.7	5.2	6.6	7.8	8.6	759
(C) Composition							
7 Month-schools	16.4	22.6	25.6	29.1	31.9	34.	334
8 Month-schools	16.3	20.6	27.2	29.	36.9	37.8	861
(D) Handwriting							
7 Month-schools	23.1	23.2	26.3	31.8	35.4	38.6	334
8 Month-schools	23.7	24.8	29.	31.1	37.1	39.5	861
(E) Addition							
7 Month-schools	.7	1.1	1.6	2.5	2.8	3.8	334
8 Month-schools	.7	1.5	1.5	2.4	3.	3.7	861
(F) Multiplication							
7 Month-schools		.6	2.1	2.8	3.8	4.9	276
8 Month-schools		.8	1.6	2.8	3.7	5.	727

Table XI (A) shows that in the eight-months ungraded schools the average spelling score was better than in the seven-month schools for only the seventh grade pupils. The seven-month schools of the same type showed a higher score in both the sixth and eighth grades. It is strongly suggested by these facts that an additional month each year of that kind of teaching does not greatly improve the results secured in spelling.

NOTE— The median scores in the above table may show a slight variance from those stated in preceding tables due to the fact the pupils in nine month schools were of course included in the computation of medians for total scores only.

In the subject of reading, table XI (B) shows that the eight-month schools had better scores in all grades but one. The difference however, was negligible for two other grades and in only two of the six grades was the average difference as great as one paragraph in both of which cases it was 1.4 paragraphs.

In composition (C) the pupils in eight month schools were noticably higher in average scores in the seventh and eighth grades but not generally superior in the other grades.

The handwriting scores in XI (D) are very similar to those for composition in that only the fifth, seventh and eighth grades showed any better results in the eight-month schools, and these differences are not very striking ones.

It does not seem possible to find any indication from the facts in XI (E) and XI (F) that one more month in the one-teacher school each year produces or could be expected to produce any better pupil results in addition and multiplication as these schools are now operated. The comparisons for subtraction and division are so similar to those reported above that they are not repeated here.

The facts in table XI were analyzed further by converting the differences in scores between the two types of schools into percentages of the expected progress in that subject for one year. For score difference the median score in seven-month schools was subtracted from the median in eight-month schools. The standard score for each grade is subtracted from that of the next succeeding grade to secure the statement of yearly progress. It was assumed (because of the absence of second grade standards) that for the third grade the progress above the second grade would be at least as much as the progress made from third to fourth grade.

TABLE XII

Standards by subjects and grades, expected yearly progress in each, and difference in median scores in two types of schools shown as percentage of the normal yearly progress.

Grades	III	IV	V	VI	VII	VIII
Spelling						
Standard Score			5	8	11.	14
Expected Yearly Progress				3	3	3
Score Difference				-0.6	2.2	-0.5
Score Diff. as Perc. of Y. P.				-30	73	-17
Reading						
Standard Score	5	7	8	9	10	11
Expected Yearly Progress	2	2	1	1	1	1
Score Difference	-0.5	0.1	0.5	1.4	1.4	0.1
Score Dfif. as Perc. of Y. P.	-25.	5	50	140	140	10
Composition						
No Standards Available						
Handwriting						
Standard Score		43	50	54	57.8	62.8
Expected Yearly Progress	5	5	7	4	3.8	5.
Score difference	0.6	1.6	3.3	-0.7	1.7	0.9
Score Diff. as Perc. of Y. P.	12	32	47	-17	45	18

Addition						
Standard Score	4	6	8	10	11	12
Expected Yearly Progress	2	2	2	2	1	1
Score Difference	0	0.4	–0.1	–0.1	0.2	–0.1
Score Diff. as Perc. Y. P.	0	20	–5	–5.	20	–10
Multiplication						
Standard Score		6	8	9	10	11
Expected Yearly Progress		2	2	1	1	1
Score Difference		0.2	–0.5	0	–0.1	0.1
Score Diff. as Perc. of Y. P.		10	–25	0	–10	10

This table is read, the standard score for the third grade in the Burgess reading test is five paragraphs. The expected yearly progress for that grade is two paragraphs. The median score in the eight-month schools was .5 of a paragraph less than in the seven-month schools. This difference is twenty-five percent of the expected yearly progress from second to third grade. The minus sign indicates that the higher average score was made in the seven-month schools.

Analysis of the facts in this table shows that the seventh and eighth grade median scores in seven of the ten comparisons favor the eight-month schools, yet in only three of these instances is the difference more than one-fifth of a year's progress (20 per cent.) This is not a convincing record for the equivalent of an extra year in school. Below the seventh grade the difference in score is in favor of the eight-month schools in only eight of the sixteen comparisons recorded for those grades in the above table. Furthermore, in composition the seventh-month schools have a higher median core in three of the four grades preceding the seventh.

These facts offer little basis for assuming that the inferior results which characterize the one-teacher school will or can be remedied by doing nothing more than extending the annual school term one or two months. It is more reasonable to conclude that there is need for a different kind of schooling rather than for merely more of the same kind. It may be suggested here that the crying need is for more schooling but of a more effective kind than the one-teacher school has been providing.

In the light of the total array of facts presented there is a strong basis for the conviction that any effective remedy for meeting the serious shortcomings of the ungraded school must include a re-organization of these schools, looking to larger school units, a reclassification of some of the pupils, and adequate supervision of instruction, which, next to a superior teacher and a desirable organization, is the most important single factor in the improvement of teaching results. The need of better teaching, of more competent teachers and of effective supervision of teaching in these schools will be discussed in the following pages. *With these changes a school year much longer than seven months is highly desirable.*

THE TEACHING FORCE IN THESE SCHOOLS

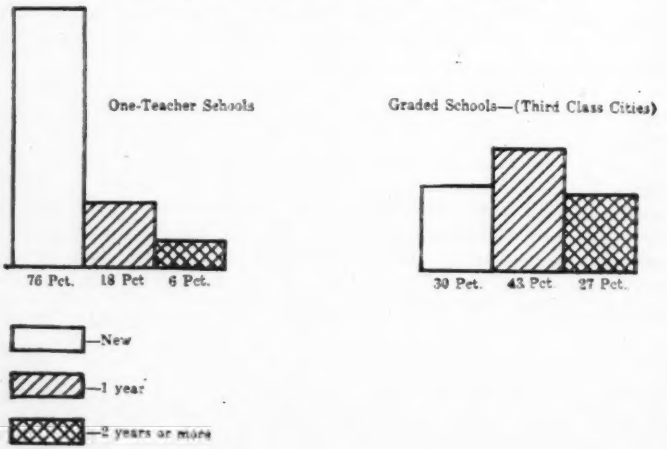
Certain other school facts closely related to the pupil achievements in these schools were carefully investigated and are presented in this report. These facts included the number, tenure, experience, training and salary of the teachers; the number of daily recitations and the size of classes in these schools; also the adequacy of educational provisions such as supplementary books and library facilities were investigated.

It is quite generally recognized by those who are well informed that nothing is more disruptive of the school progress or the continuous educational development of the pupils than is the continual changing of teachers. Satisfactory teaching results are practically impossible and should not be expected where such teacher transiency and brief tenure of employment prevail. *Yet it was found that in sixty-six of the one-teacher schools which reported the facts, fifty teachers or 76 percent were new in their positions that year. Twelve others had been in their positions but one year. Only four of the sixty-six teachers had been in their present positions more than a single year.*

For graded schools in third class cities ten of the thirty-three teachers for whom the data were secured were new in their positions that year, fourteen of the number had been in the same positions more than one year. Thus while in the ungraded schools approximately eight out of every ten teachers were new, only three in ten of the graded school teachers were new or strange to the pupils taught that year. *The unstable teaching force resulting from such a large 'teacher turnover' is an indisputable menace to the educational interests of those schools. It is a bad practice both as a business and as an educational procedure.*

DIAGRAM VI

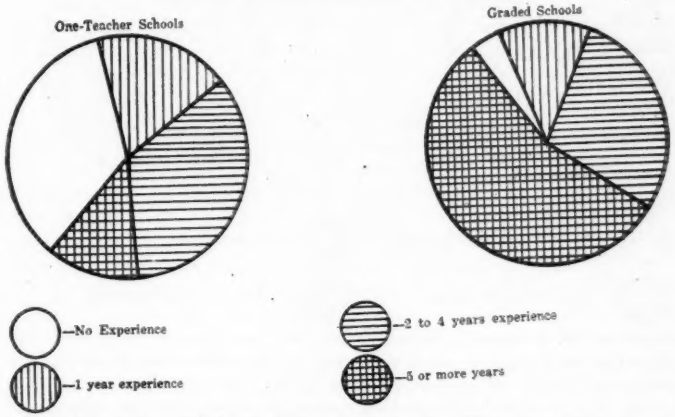
Showing Tenure of Teachers in Present Positions



That many of the teachers in ungraded schools are each year replaced by inexperienced teachers is made clear by reference to table 127 (appendix) which shows that *one-third (33 of 98) of these one-room schools had inexperienced teachers.* Likewise table 128 shows that in contrast of this fact only one-twenty-fifth (2 of 51) of the teachers in the third class city graded schools and in two-teachers schools were inexperienced teachers. Approximately eighty percent of those reported in the latter table had two years or more of teaching experience. This fact of experience of the teacher is a very significant one for the boys and girls attending these schools. Not only should the amount of experience in teaching receive attention but also the kind of experience—undirected teaching often gives bad experience.

DIAGRAM VII

Showing Teacher Comparison by Years of Experience



Another serious deficiency of these teachers, in addition to their inexperience, is their inadequate training as is disclosed by the fact that *seven out of every ten teachers in the one-room rural schools investigated had never received more than a high school training themselves. One in every ten had less than four years of high school training. Such teachers are not well educated or well trained for their work. Of those who went beyond high school in their training seventy-five percent got only one year or less at a normal school.*

The situation was quite different for teachers in the graded schools of the third class city and even in the two-teacher school. Practically all of these teachers had received four years of high school training and five out of every ten had received normal school or college training. Several had completed four years of college or normal school work.

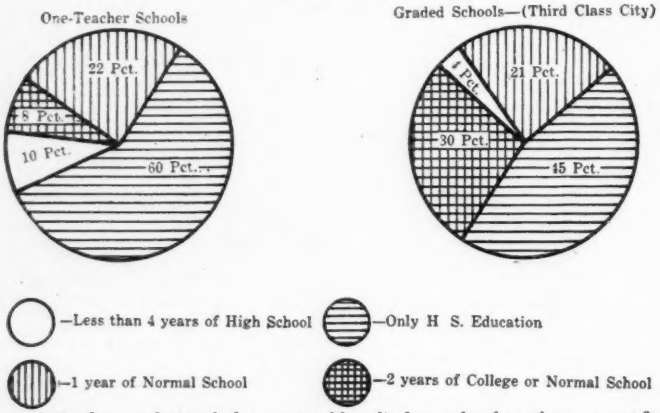
The kind of certificates held by these two groups of teachers is shown in tables 129 and 130.

By reference to tables 127 and 128 one may find that the monthly salaries received by the teachers in one-room schools were much lower than those received by teachers in the graded schools of the third class city and in the two-teacher school. *The average (median) salary in the ungraded schools was*

$91 a month; in the graded schools the median salary was $114.30 a month, or $23.30 a month more than the average for one-teacher schools. The difference was even greater than is shown by a comparison of the average monthly salaries because the low salaries were lower and the high salaries were not as high as in the graded schools, as is shown in diagram IX. Furthermore the yearly salary in the ungraded schools is for a year that is shorter by one or two months.

DIAGRAM VIII

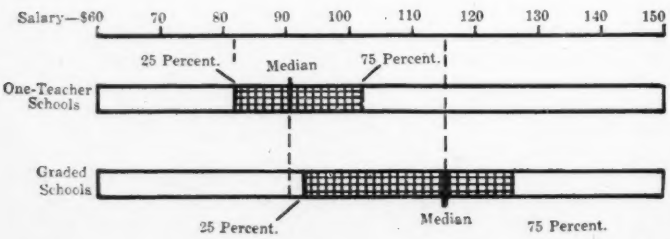
Showing Education and Training of Teachers



A further analysis of the same tables discloses the fact that seventy-five percent of the teachers in rural ungraded schools received less than $102.90 a month, and twenty-five percent of their number were paid less than $83 a month. In contrast with these facts seventy-five percent of the teachers reported in the graded schools were paid more than $93 a month and twenty-five percent of their number receive more than $128 a month, as is shown in the next diagram. The shaded portions of the diagram represent the middle fifty percent in each distribution of teachers' salaries.

DIAGRAM IX

Showing Teachers' Monthly Salaries in Ungraded and Graded Schools



It is clearly evident from these facts that the rural ungraded school has been provided with cheaper teachers, and it has certainly been the victim of cheaper teachers. *There can be no reasonable doubt that the low level of the one-teacher schools, as shown in the results of instruction, was closely related to the low level of the teaching force in these schools, as shown by the insufficient training, inexperience and instability of that force and furthermore that this low level of teacher qualification was closely related to the extremely low salaries paid.* In brief, these schools had been greatly weakened in their teaching results by the continued policy of hiring cheaper and less competent teachers for even a shorter school year, as is made so evident in the analysis presented above.

The law of supply and demand operates in the employment of teachers as in other employments. The demand for cheap teachers will naturally increase the supply of these. Inadequate salaries offer no inducement for better preparation. It should also be said that it is the cheaper teacher who is more frequently willing to accept the rural school position with its many handicap. The cheap school provides a market for the cheap teacher. The positions that offer better salary and opportunity are usually not open to them. However, many of these teachers do earn much more than they are paid.

But in the long run fundamental economic principles must be recognized and good teachers must be paid a fair salary if they are to be secured. The cheap teacher and the good teacher will not often be the same. Economic laws demand that the more valuable services of the trained teacher must be paid enough to justify the training. At present the pay does not attract and hold the more capable teachers for these one-room rural schools.

It is a mistake to assume from the reference to cheap teachers that a low salary for the teacher always means that the instruction is not expensive. School costs computed on a basis of average daily attendance are most satisfactory for purposes of cost comparison. The cost per pupil is stated on that basis in the next table for the one-teacher schools in several of the counties and for the graded schools in several cities of the third class.

Only the cost of the teacher's salary is included for many of the one-teacher districts, so that the cost is consequently somewhat understated. Yet it is obvious that in four of the five counties the cost of instruction, already shown to be inferior in these ungraded schools, is much more expensive per pupil than in the graded schools. The larger per-pupil cost accompanies the smaller enrollment.

TABLE XIII

Comparison of the Costs of Instruction Per Year.

For Elementary Schools in	One-Teacher Schools Tested	Cost per Pupil in Av. D. Attend.	Median Enrollment
Rooks County	12	$82.40	11
Seward County	9	56.	25
Johnson County	8	71.30	14
Douglas County	14	62.	18
Jefferson County	13	46.	25
Stockton	Graded School	40.20	223
DeSota	" "	43.	85
Lecompton	" "	49.80	68
Perry	" "	45.	100
Ellis	" "	46.	227

These costs were approximated on the assumption that the number of pupils present in school on the date of the testing would represent about the average number in school for the year. The error in this assumption is probably small since the testing occured in the middle of the school year and since several schools were grouped in each county for the computation.

The large number of classes per day which must be taught makes the task of a teacher in the one-room ungraded school especially difficult from the standpoint of getting good teaching results. A well trained teacher is a necessity if the instruction results in such a school are to come near to reaching satisfactory standards. *Only thirty-two percent of the one-teacher schools investigated had less than thirty classes a day to be taught by a type of teacher who, as shown above, is usually a poorly prepared, inexperienced and cheap salaried individual. ..Thirty percent of these teachers were loaded with the teaching of thirty-five or more daily classes as the class schedule showed.* However indefensible it may be, there were several of these teachers whose programs called for more than forty recitations or classes daily.

The extremely small number of pupils in many of the grades in such schools is a feature of the organization that requires a large number of daily classes per teacher. The following table shows in how many schools and in how many grades only one pupil was enrolled. Similar facts are also presented for grades in which there were only two pupils enrolled.

TABLE XIV

The Number of One-teacher Schools in Which One, Two, Three, or more Grades Have Only One pupil Enrolled.

No. of Grades Having but 1 Pupil	1	2	3	4	5	Total Schools	Total Grades
No. of Schools*	36	25	16	4	2	83	160

The same with Reference to Two Pupils in a Grade.

No. of Grades Having only 2 Pupils	1	2	3	4	Total Schools	Total Grades
No. of Schools*	39	22	18	9	88	173

Table XIV states that in thirty-six of these schools there was one grade which had only one pupil; in twenty-five other schools, two of the grades had only one pupil; in sixteen schools, three of the grades had but one pupil. *In all, eighty-three of the ninety-eight one-teacher schools had one or more grades in which there was only one pupil. Similarly it is stated that eighty-eight of these ninety-eight schools had one or more grades in which only two pupils were enrolled.* The educative contacts that come from group instruction and the reciprocal influences of pupils on each other are practically all absent and lost for such pupils. The expensive duplication in having so many schools teaching so many grades with only one or two pupils in them can be justified neither as good business nor good educational procedure.

No grade in cities of the third class was reported as having fewer than five pupils in the grade. The teachers in these schools averaged less than half the number of daily classes per teacher that were reported for one-teacher schools. In cities of the second class some class groups

*These numbers are mutually exclusive—No overlapping involved.

were much too large—more than fifty pupils in some classes. It would make for economy in instruction and insure better teaching results to have such excessively large groups divided into two distinct classes for teaching purposes.

The teacher in the one-room school was further handicapped by the lack of such school provisions as adequate library reference books or supplementary text books. Only one in seven of these schools claimed to have any kind of supplementary text books for any grade. Even the one school in seven had few such books—never were as many as a dozen books reported. A majority of these one-teacher schools reported that they had some library books. But six out of every ten had none for grades I and II, and almost as large a number had none for grades III and IV, yet more than half of their pupils were in these four grades. Nearly four out of every ten of these schools had provided less than a dozen library books, of whatever sort they might be, even for grades V to VIII. The opportunity to know books and to come to like them is not provided by such an absence of good books.

These facts are another evidence that the one-teacher school is not as well prepared to offer efficient instruction as is a better equipped graded school. In an apparent endeavor to make it a cheaper school it has been made a less efficient school, for the boys and girls who live in rural districts and attend such schools. No one will dispute the fact that equality of educational opportunity in the elementary school will not be secured by this procedure. Neither will anyone assert that rural children are not entitled to educational opportunities which are equal to those provided for other children.

CONCLUSIONS

From the evidence presented in this study the following conclusions seem quite fully justified.

1—The boys and girls in the one-teacher schools are in general getting an inferior kind of instruction and they are usually taught by an inexperienced, poorly prepared and poorly paid teacher.

2—These facts, together with the excessive number of daily classes to be taught and the absence of essential teaching facilities, operate to rob the children in such schools of fair and reasonable educational opportunities.

3—With such serious handicaps, effective education is impossible for either upper or lower grade pupils in the one-teacher schools of the State.

4—The pupil achievements in the graded schools are in general much superior to the results of instruction in the one-teacher schools.

5—Notwithstanding this fact the graded schools, especially in cities of the third class, are still well below acceptable standards in the subjects tested and show a very evident need of better teaching and of adequate direction or supervision of the instruction that is being offered.

6—The difference between the achievements of pupils attending the seven-month and eight-month school of the one-teacher type are practically negligible under present conditions for grades below the seventh. There is not much advantage in the additional month of that kind of schooling.

7—Such advantages as appear in favor of the eight-month school are limited for the most part to the seventh and eighth grades, to which it is

generally agreed more than a fair share of the teachers time is devoted in one-teacher schools.

8—While the age and school grade distributions of pupils are in general similar for the different types of scools, there is a noticable tendency toward an excess of older pupils in the ungraded one-room school.

RECOMMENDATIONS PROPOSED BY THE COMMITTEE

1—Displacement of the one-room one-teacher type of school wherever possible in favor of the graded school type of organization.

2—The limitation of one-room schools to grades one to six inclusive where they cannot be displaced by a better type of organization.

3—The desirability of a reclassification of pupils in their school grades as the organization into larger units makes such a reclassification feasible.

4—That with the changes here noted a minimum school year of at least 180 actual school days be established for the elementary schools of the state.

5—That graduation from a four-year high school be made a legal minimum requirement for securing any certificate to teach in the elementary schools of the States, but that communities should demand at least two additional years of training.

6—Every district should pay to its teachers salaries which are sufficiently high to attract and hold competent, trained teachers, and which will correspond in a fuller degree with the importance of the task assigned to them.

7—State funds should be provided in sufficient amount to enable every district to provide instruction by a well trained teacher for boys and girls of that community.

8—The scheme of teachers certification in Kansas should be revised or replaced by a system more in conformity with the standards now recognized by the best practice in educational administration.

9—Suitable provision for the more important non-academic subjects in the elementary grades of all graded schools should be encouraged by appropriate means.

10—That the crucial importance of adequate direction and supervision of the teaching work be recognized and emphasized.

11—That State aid and State encouragement be provided for the support and promotion of helpful, constructive, effective supervision of elementary teaching.

12—That the provision of a sufficient number of well-selected supplementary text-books and library reference books for the elementary grades be made mandatory upon all schools, by the withholding of all State aid money if necessary.

Tables showing the complete tabulations are presented in the appendix which follows.

APPENDIX

(To avoid confusion with the tables in the report presented thus far, the tables followig are numbered beginning with 101.

TABLE 101

SPELLING

One-Teacher Rural Schools
(Buckingham— Ayres Scale, 'W' List)

No. Words Spelled	Grades VI	VII	VIII	Total
20			6	6
19			4	4
18		1	10	11
17		4	10	14
16	1	4	9	14
15	1	1	18	20
14	0	5	21	26
13	3	11	11	25
12	2	4	14	20
11	5	11	9	25
10	4	7	18	29
9	4	8	18	30
8	6	11	18	35
7	14	9	16	39
6	16	9	17	42
5	18	18	20	56
4	14	19	14	47
3	14	15	12	41
2	22	20	15	57
1	31	12	8	51
0	18	11	2	31
No Record	6	0	1	7
Total	179	180	271	630
Median No. Words	3.	5.	9.	

TABLE 102

SPELLING

Graded Schools—Cities of Third Class
(Buckingham— Ayres Scale, 'W' List)

No. Words Spelled	Grades VI	VII	VIII	Total
20		1	3	4
19	2	2	8	12
18	1	2	8	11
17	0	9	9	18
16	2	7	6	15
15	3	9	10	22
14	2	10	16	28
13	1	5	18	24
12	3	6	10	19
11	6	11	11	28
10	6	5	18	29
9	8	12	6	26
8	8	12	8	28
7	6	6	8	20
6	20	15	5	40
5	14	20	6	40
4	20	10	5	35
3	14	5	7	26
2	16	8	5	29
1	11	3	3	17
0	6	2	1	9
Total	149	160	171	480
Median No. Words	5.	8.	12.	

TABLE 103

SPELLING

Two-Teacher Schools.
(Buckingham— Ayres Scale, 'W' List)

No. Words Spelled	Grades VI	VII	VIII	Total
20				
18		1	3	4
17		5	1	6
16		1	4	5
15	1	1	2	4
14		1	6	7
13		2	2	4
12	2	0	2	4
11	2	4	0	6
10		1	4	5
9	1	5	3	9
8		2	0	2
7	6	3	3	12
6	6	4	4	14
5	4	2	1	7
4	8	4	2	14
3	9	3	1	13
2	8	5		13
1	5	2		7
0	3	0		3
Total	55	46	38	139
Median No. Words	4.	7.	12.	

TABLE 104

SPELLING

Second Class Cities
(Buckingham— Ayres Scale, 'W' List)

No. Words Spelled	Grades VI	VII	VIII	Total
20	1	2	12	15
19	2	6	23	31
18	1	9	9	19
17	2	5	20	27
16	2	6	14	22
15	3	10	21	37
14	6	10	19	35
13	6	11	10	27
12	11	12	13	36
11	13	13	10	36
10	12	28	19	59
9	18	21	15	54
8	27	19	8	54
7	25	19	15	59
6	26	24	8	58
5	32	20	5	57
4	32	23	8	63
3	25	13	12	50
2	16	18	2	36
1	11	9	6	26
0	8	8	3	19
No Data	4	6	7	17
Total	286	292	259	837
Median No. Words	6.	8.	12.	

TABLE 105

SILENT READING

One-Teacher Rural Schools (Burgess Scale) Grades	III	IV	V	VI	VII	VIII	Total
No. Paragraphs read cor. 0	60	21	7	4	0	3	95
1	29	17	13	2	1	1	63
2	31	35	17	7	5	2	97
3	20	28	23	18	10	5	104
4	19	30	23	17	12	16	117
5	9	19	28	21	21	10	108
6	2	11	13	23	24	25	98
7	2	10	18	17	15	30	92
8	4	6	15	20	26	39	110
9	0	7	9	6	14	31	67
10		0	4	4	7	28	43
11		1	3	3	6	7	20
12			2	4	8	17	31
13			1	3	4	12	20
14				4	1	3	8
15					1	3	4
16						4	4
17							0
18				2	2	2	6
19			1	1	0	1	3
20					1	0	1
Total	176	185	177	156	158	239	1091
Medians	1.9	3.7	5.2	6.38	7.4	8.7	
Degree of Correctness	57.4	72.9	71.7	83.	87.	87.	

TABLE 106

SILENT READING

Third Class Cities—Graded (Burgess Scale) Grades	III	IV	V	VI	VII	VIII	Toatl
No. Paragraphs read cor. 0	28	6	3	1	0	1	39
1	33	15	2	2	3	0	55
2	28	14	13	6	1	3	65
3	27	18	10	12	3	5	75
4	25	32	19	15	10	6	107
5	15	28	19	16	15	9	102
6	7	16	25	15	16	20	99
7	4	25	22	27	15	20	113
8		9	18	21	19	25	92
9	1	6	12	10	17	23	69
10	1	7	15	7	14	21	65
11	1	5	7	5	16	7	41
12	2	1	2	6	7	11	29
13		3	1	1	10	7	22
14	1	1	1	5	4	6	18
15		1	0	0	2	5	8
16					2	2	4
17				1	2	1	4
18						1	1
19							
20							
Total	173	187	169	150	156	173	1008
Medians	2.9	5.32	6.76	7.3	8.8	8.9	
Degree of Correctness	62	74	80	89	87.7	88	

TABLE 107

SILENT READING

Two-Teacher Schools (Burgess Scale)

Grades	III	IV	V	VI	VII	VIII	Total
No. Paragraphs read cor.... 0	10	8	4	4	0	3	29
1	7	5	4	2			18
2	8	6	5	4	1		24
3	4	8	4	4	3		23
4	1	7	2	6	2	2	20
5	3	4	3	2	4	2	18
6		1	4	8	5	2	20
7	1	4	4	5	4		18
8			1	5	3	3	12
9			2	2	1	2	7
10			2	1	3	4	10
11					4	1	5
12			2			1	3
13					1	2	3
14					3		3
15					1	1	2
16					1		1
Total No.	34	43	37	43	36	23	216
Median	2	3.4	5.	6.	7.75	9	
Degree of Correctness	44	43.3	50.	65.5	75.6	68.3	

TABLE 108

SILENT READING

Second Class Cities (Burgess Scale)

Grades	III	IV	V	VI	VII	VIII	Total
No. Paragraphs read cor..... 0	33	11	2		2		46
1	38	17	4		2		61
2	40	36	13	1	1		91
3	45	44	23	15	2	4	133
4	39	39	28	22	2	6	136
5	31	47	26	32	15	6	157
6	15	43	31	22	21	21	153
7	11	34	41	44	31	17	178
8	3	19	42	38	38	41	181
9	2	10	14	24	38	26	114
10	1	7	18	33	31	40	130
11	2	5	12	14	27	20	80
12	1	5	14	16	27	30	93
13	1	0	4	13	15	19	52
14	1	2	1	4	17	10	35
15		1	2	3	8	4	18
16			1	3	3	3	10
17			1	2	2	3	8
18			1	0	3	3	7
19					4	1	5
20					1		1
N.D.	10	2	4		4	5	25
Total	273	322	282	286	292	259	1714
Median	3.5	5.3	7.3	8.2	9.91	10.21	
Degree of Correctness	71.1	82.9	86.8	84.6	90	91.2	

TABLE 109

FUNDAMENTAL PROCESSES OF ARITHMETIC

One-Teacher Rural Schools **(Courtis Standard Test)**

No. Problems Right	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	18	N.D.	Total	Median
Addition																			
Grades III	134	26	19	5	7	1	2										5	199	.74	18.3
IV	99	41	30	17	12	4	2	2										207	1.12	24.4
V	69	46	29	19	15	7	3	0	0	3							5	196	1.63	32.7
VI	40	38	29	24	27	10	6	4	1									179	2.41	35.
VII	36	30	25	26	25	9	11	5	7	3							3	180	2.96	43.
VIII	30	39	44	33	43	28	22	19	5	4	2	2						271	3.69	44.
Total	408	220	176	124	129	59	46	30	13	19	2	2					13	1232		
Subtraction																			
Grades III	152	24	13	4	2	2	1	1					1					199	.65	12.3
IV	85	40	26	22	20	8	2	3										207	1.47	33.1
V	57	29	37	31	22	13	5	2										196	2.32	38.2
VI	26	23	33	26	16	20	14	9	7	3	1	0	1					179	3.30	53.4
VII	15	8	17	25	23	29	15	15	15	10	3	3	0	1	1			180	5.06	59.4
VIII	9	8	14	21	26	31	37	35	23	21	19	13	9	2	3			271	6.73	71.5
Total	344	132	140	129	109	103	74	65	45	34	23	17	10	3	4			1232		
Multiplication																			
Grades III		2	2															4		
IV	128	25	24	15	10	2	3											207	.81	24.8
V	69	42	25	32	17	5	5	1										196	1.69	37.3
VI	35	30	32	29	26	17	8	1	0	1								179	2.78	47.
VII	20	23	26	29	24	25	12	8	6	5	1	0	0	1				180	3.72	53.4
VIII	16	14	37	31	39	42	28	27	16	8	6	6	1	2	3			271	4.97	58.6
Total	268	136	146	136	116	91	56	37	22	14	7	6	1	3	3			1037		
Division																			
Grades III		1																1		
IV	173	22	12															207	.60	14
V	131	41	20	1	0	3												196	.74	23.3
VI	87	44	30	8	4	3	1	2										179	1.06	42.8
VII	55	38	37	22	14	6	3	3	2									180	1.92	4.28
VIII	39	30	37	33	30	31	19	22	13	8	4	3	1	0	1			271	3.90	65.5
Total	485	176	136	64	48	43	23	27	15	8	4	3	1	0	1			1034		

TABLE 110

FUNDAMENTAL PROCESSES OF ARITHMETIC

Two-Teacher Schools **(Courtis Standard Tests)**

No. Problems Right	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	16	19	Total	Median Score
Addition																			
Grades III	24	12	5	2														43	.9
IV	24	11	6	9	2	2	2											56	1.4
V	14	10	8	10	4	2	4											52	2.2
VI	12	10	6	6	5	7	4	2	2	1								55	3.
VII	5	8	8	7	7	4	4	2	1									46	3.
VIII	2	1	4	10	4	5	3	4	0	2	2					1		38	4.5
Total	81	52	37	44	22	20	17	8	3	3	2					1		290	
Subtraction																			
Grades III	32	5	3	2	1													43	.68
IV	19	11	8	8	7	3												56	1.82
V	10	9	8	6	4	8	5	2										52	2.88
VI	6	3	9	5	6	10	6	7	2	1								55	4.83
VII		2	4	6	5	4	5	4	4	4	4	3	0	1				46	6.4
VIII		1	0	1	1	2	8	6	1	3	3	1	4	5	0	1	1	38	8.
Total	67	31	32	28	24	27	24	19	7	8	7	4	4	6	0	1	1	290	
Multiplication																			
Grades III																			
IV	30	12	7	3	3	1												56	.93
V	15	8	11	6	4	6	1	1										52	2.27
VI	9	8	6	13	11	3	1	1	1	1	1							55	3.38
VII	2	4	7	14	0	4	5	3	2	3	0	1	0	1				46	3.71
VIII		1	1	5	1	3	5	8	4	4	1	1	1	1	1	1		38	7.37
Total	56	33	32	41	19	17	12	13	7	8	2	2	1	2	1	1		247	
Division																			
Grades III																			
IV	46	5	5															56	.61
V	38	7	3	2	1	1												52	.68
VI	22	10	8	7	6	1	0	1										55	1.6
VII	6	7	8	8	6	7	3	0	0	1								46	3.25
VIII	1	4	2	6	4	4	4	4	3	2	2					2		38	5.5
Total	113	33	26	23	17	13	7	5	3	3	2					2		247	

TABLE 111

FUNDAMENTAL PROCESS OF ARITHMETIC

Graded Schools Cities of Third Class **(Courtis Standard Tests)**

No. Problems Right	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	20	Tot.	Med.
Addition (Eight minutes)																						
Grades III	97	26	12	6	2	1	0	0	1												145	.75
IV	64	36	27	10	14	4	3	4	2	1											165	1.52
V	36	25	27	16	15	10	10	2	1												142	2.47
VI	30	27	22	21	14	16	7	4	5	3											149	2.82
VII	16	20	24	20	24	20	17	11	5	2	1										160	4.
VIII	10	15	19	27	22	20	18	19	5	7	5	2	0	1					1		171	4.78
	253	149	131	100	91	71	55	40	19	13	6	2	0	1					1		932	
Subtraction (Four minutes)																						
Grades III	87	20	20	8	7	3															145	.83
IV	45	35	35	19	13	7	6	1	3	1											165	2.08
V	21	15	23	20	26	13	10	9	2	3											142	3.6
VI	8	8	11	19	17	26	23	11	14	8	3	1									149	5.46
VII	5	7	10	13	14	25	25	14	14	12	9	6	4	2							160	6.24
VIII	1	4	8	8	19	15	23	33	15	10	9	11	5	3	0	2	3	0	2		171	7.24
Total	167	89	107	87	96	89	87	68	48	34	21	18	9	5	0	2	3	0	2		932	
Multiplication (Six minutes)																						
Grades III		8	2	1																	11	
IV	65	30	30	14	15	6	2	3													165	1.6
V	30	25	18	24	26	9	8	2													142	2.88
VI	17	23	24	23	14	21	14	9	3	0	1										149	3.48
VII	6	11	17	21	22	22	21	13	13	3	4	8	0	0	1						160	5.13
VIII	8	5	15	12	23	26	22	17	18	8	7	3	2	2	2			1			171	5.88
Total	126	102	106	95	100	82	67	44	34	11	12	11	2	2	3			1			798	
Division (Eight minutes)																						
Grades III																						
IV	134	19	9	2	1																165	.62
V	90	31	12	6	2	1															142	.79
VI	39	24	25	19	17	14	3	3	3	1	0	1									149	2.48
VII	26	17	27	20	15	15	14	6	7	3	6	0	2	2							160	3.50
VIII	13	14	24	21	20	21	17	12	7	5	5	2	3	1	3	1	0	1	1		171	4.7
Total	302	105	97	68	55	51	34	21	17	9	11	3	5	3	3	1	0	1			1-787	

TABLE 112

FUNDAMENTAL PROCESS OF ARITHMETIC

Second Class Cities (Courtis Test)

No. Problems Right	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16-22	N.D.	Total	Med.
Addition																				
Grades																				
III	92	35	15	8															150	.81
IV	58	28	32	19	18	4	7	2											168	1.9
V	40	36	27	16	12	6	4	4	1										146	1.9
VI	14	26	21	18	19	15	12	7	4	1	1								138	3.4
VII	19	30	35	32	28	30	21	17	14	4	1	2	1						234	4.
VIII	12	14	21	24	33	27	20	17	13	10	9	4	2					6	212	5.1
Total	235	169	151	117	110	82	64	47	32	15	11	6	3					6	1048	
Subtraction																				
Grades																				
III	109	25	9	6	0	1													150	.7
IV	50	28	35	19	18	11	2	4	1										168	2.2
V	24	16	29	30	25	10	7	3	1	1									146	3.1
VI	3	12	18	20	21	21	15	12	8	3	1	0	2	0	1	1			138	4.8
VII	3	16	15	15	20	33	29	30	20	22	12	9	2	4	0	2	2		234	6.5
VIII		1	3	8	7	17	23	31	25	27	20	24	8	2	4	2	4	6	212	8.6
Total	189	98	109	98	91	93	76	80	55	53	33	33	12	6	5	5	6	6	1048	
Multiplication																				
Grades																				
III																				
IV	91	21	20	18	11	4	3												168	.9
V	37	34	28	22	14	9	1	0	1										146	2.1
VI	15	16	25	22	19	12	19	6	4										138	3.6
VII	8	16	30	28	47	39	32	18	9	5	0	2							234	4.7
VIII		8	14	14	27	34	25	24	17	17	13	10	1	2				6	212	6.2
Total	151	95	117	104	118	98	80	48	31	22	13	12	1	2				6	898	
Division																				
Grades																				
III																				
IV	139	20	6	3															168	.6
V	82	30	17	9	3	4	0	1											146	.9
VI	27	31	26	20	12	7	4	3	5	1	1	1							138	2.5
VII	29	35	35	32	31	22	17	14	8	1	5	2	2	0	1				234	3.6
VIII	5	13	21	25	23	37	18	25	14	7	5	9	0	2	2			6	212	5.5
Total	282	129	105	89	69	70	39	43	27	9	11	12	2	2	3			6	898	

ARITHMETIC REASONING TEST

TABLE 113

One-Teacher Rural Schools

	IV-V	VI-VII	VIII	Total
0	2		2	4
1-2	2	1		3
3-4	3		4	7
5-6	2	3	2	7
7-8	5	2	4	11
9-10	6	3	4	13
11-12	2	7	1	10
13-14	6	8	3	17
15-16	4	4	3	11
17-18	3	3	1	7
19-20	5	3	6	14
21-22	4	1	3	8
23-24		2	5	7
25-26	2	6	3	11
27-28	5	3	4	12
29-30	2			2
31-32	3	2	4	9
33-34	1	3	1	5
35-36	1	5	2	8
37-38	1	3	1	5
39-40	2	2	1	5
41-42	1			1
43-44	1	1		2
45-46	1	1	1	3
47-48	2			2
49-50	1			1
55-56	1			1
Total	68	63	55	186
Median	18.33	19.66	20.33	

TABLE 114

Graded Schools Third Class Cities

Grades	IV-V	VI-VII	VIII	Total
0	1	1		2
1-2	0	0	0	0
3-4	0	2	1	3
5-6	1	6	1	8
7-8	2	3	3	8
9-10	0	2	1	3
11-12	8	5	3	16
13-14	6	5	4	15
15-16	8	3	3	14
17-18	3	3	3	9
19-20	3	5	2	10
21-22	3	10	1	14
23-24	1	6	2	9
25-26	2	14	4	20
27-28	3	8	0	11
29-30	4	13	4	21
31-32	3	11	4	18
33-34	2	8	3	13
35-36	0	10	4	14
37-38	3	8	3	14
39-40	1	3	2	6
41-42	0	7	1	8
43-44	2	7	0	9
45-46		5	2	7
47-48		3	2	5
49-50		2	1	3
51-52		1		1
55-56		1		1
63-64	1	0		1
Total	57	152	54	263
Median	19.	29.46	26.50	

TABLE 115

WRITTEN COMPOSITION

(Willing Scale)

One-Teacher Rural Schools— Score— Grades	0	10	20	30	40	50	60	70	No Record	Total Pupils	Median Score
III	24	65	73	34	3					199	16.5
IV	6	42	93	47	18	1				207	21.
V	7	15	24	71	28	1				196	27.4
VI	1	6	53	67	41	8			3	179	29.
VII	1	2	31	58	58	27			3	180	34.
VIII	1	1	27	90	89	48	10	1	4	271	36.5
Total	40	131	331	387	237	85	10	1	10	1232	

TABLE 116

WRITTEN COMPOSITION

(Willing Scale)

Graded Schools Third Class Cities— Score— Grades	0	10	20	30	40	50	60	No Record	Total Puplis	Median Score
III	19	40	62	21	2	1			145	17.25
IV	5	24	55	68	13				165	24.81
V	4	5	38	68	26	1			142	28.53
VI	4	11	18	55	52	9			149	32.63
VII	5	10	13	44	59	25	4		160	36.35
VIII	4	8	15	43	68	29	4		171	37.35
Total	41	99	201	299	220	65	8		952	

TABLE 117

WRITTEN COMPOSITION

Two-Teacher Schools

(Willing Scale)

Scores		0	10	20	30	40	50	60	Total Pupils	Median Scores
Grades	III	5	4	25	9				43	20.2
	IV		5	30	13	6	1	1	56	22.66
	V	2	2	22	14	11	1		52	25.
	VI		5	20	18	10	2		55	26.7
	VII		2	10	13	15	5	1	46	33.46
	VIII			2	11	16	7	2	38	38.75
Total		7	18	109	78	58	16	4	290	

TABLE 118

WRITTEN COMPOSITION

Graded Schools; Second Class Cities

(Willing Scale)

Score		0	10	20	30	40	50	60	70	80	90	N.D.	Total	Median
Grades	III	39	52	43	24	25	6	1	3	2	1	6	202	16.63
	IV	9	43	43	97	45	9	1					247	27.99
	V	2	23	35	86	44	17	7	2	1		8	225	30.7
	VI		2	26	46	79	51	14	4	1			223	39.81
	VII		1	20	45	62	45	37	16	2	1	7	236	43.
	VIII		2	21	33	63	38	25	13	2	6	8	211	42.34
Total		50	123	188	331	318	166	85	38	8	8	29	1344	

TABLE 119

HANDWRITING

One-Teacher Rural Schools— Scores 0	10	20	30	40	50	60	70	No Rec.	Total	Median
Grades—										
III 1	18	94	74	12					199	23.5
IV	11	81	88	25	2				207	2 .36
V	6	58	81	41	9	1			196	29.2
VI		42	73	52	11	1			179	31.57
VII		18	62	63	30	4		3	180	36.11
VIII 1	2	20	75	86	56	23	7	1	271	39.37
Total 2	37	313	453	279	108	29	7	4	1232	

TABLE 120

HANDWRITING

Graded Schools; Third Class Cities— Scores 0	10	20	30	40	50	60	70	Total	Median
III	7	45	67	22	3	1		145	28.1
IV	4	22	86	46	7			165	31.6
V 1	1	18	63	52	6	1		142	33.1
VI		12	54	60	20	2	1	149	36.5
VII		8	30	62	44	10	6	160	41.8
VIII		5	54	58	39	11	4	171	39.6
Total 1	12	110	354	300	119	25	11	932	

TABLE 121

HANDWRITING

(Ayres Scale)

Two-Teacher Schools Scores 10	20	30	40	50	60	70	80	Total Pupils	Median Scores
Grades—									
III 6	21	12	3	1				43	22.62
IV 2	23	24	6	0	1			56	26.25
V	18	23	9	2				52	28.48
VI	10	22	18	3	1	1		55	33.18
VII	9	20	9	6	2			46	32
VIII	2	12	12	10	2			38	39.17
Total 8	83	113	57	22	6	1		290	

TABLE 122

HANDWRITING

(Ayres Scale)

Graded Schools Second Class Cities— Grades— Score 10	20	30	40	50	60	70	80	90	N.D.	Total	Median
III 1	53	78	44	15	2	1	1	0	7	202	30.64
IV 0	45	86	81	24	9	2				247	34.18
V	41	67	50	37	8	3			19	225	34.25
VI	11	37	51	57	49	8	7	3		223	47.28
VII	14	49	54	59	37	10	6	1	6	236	44.62
VIII	9	53	74	28	24	16	6	1		211	40.91
Total 1	173	370	354	220	129	40	20	5	32	1344	

TABLE 123
AGE-GRADE TABLE

Pupils in One-Teacher; Rural Schools

(Ages are stated from birthday to birthday)

Grades	Ages	7	8	9	10	11	12	13	14	15	16	17	18	19	Total		Percent of Total
III	B	7	31	34	19	8	2	2	0	1					104		
	G	5	37	32	18	3									95	199	16
IV	B		3	25	46	19	7	5	4	2					111		
	G		13	36	28	12	3	3	1	0					96	207	17
V	B		1	11	31	25	15	9	4	3	0	1			100		
	G		1	8	39	26	16	4	0	2					96	196	16
VI	B			1	7	28	28	12	6	6	1	0	0	1	93		
	G				9	30	28	14	7	1					86	179	14
VII	B					13	20	30	13	8	2	1			87		
	G				2	10	28	33	13	4	1	2			93	180	15
VIII	B					4	10	32	34	37	10	5			132		
	G				1	2	12	40	44	22	14	3	1		139	271	22
Total	B	7	35	71	103	97	82	92	62	57	13	7	0	1	627		
Total	G	5	51	76	97	83	87	92	64	29	15	5	1	0	605		
		12	86	147	200	180	169	184	126	86	28	12	1	1	1232		
Percent of Total		1.	7.	12.	16.	14.6	13.7	15.	10.	7	2.3	1	.1	.1			

TABLE 124

AGE-GRADE TABLE

Two-Teacher Schools— Age— / Grades—		7	8	9	10	11	12	13	14	15	16	17	18	Total		Percentage
III	B		7	4	1	4	1							17		
	G	3	7	9	3	3	1							26	43	14.82
IV	B		2	6	10	7	0	2						27		
	G		3	7	10	4	3	2						29	56	19.31
V	B			2	8	7	7	4	2	1				31		
	G			1	7	5	4	4						21	52	17.92
VI	B				2	5	10	7	2	4				30		
	G				2	10	9	1	3					25	55	18.96
VII	B					2	5	8	4	4	0	1		24		
	G					2	4	4	8	4				22	46	15.8
VIII	B						1	3	6	8	2			20		
	G						1	4	9	2	2			18	38	13.10
Total	B	0	9	12	21	25	24	24	14	17	2	1		149		
Total	G	3	10	17	22	24	22	15	20	6	2			141	290	
Percent		1.	6.5	10.	14.8	17.	15.5	13.		11.7	7.9	1.4	.3			

TABLE 125
AGE-GRADE TABLE

Graded School Pupils; Cities of Third Class.

Grades		Ages 7	8	9	10	11	12	13	14	15	16	17	18	19	Total		Percent of Total
							(Ages are stated from birthday to birthday)										
III	B	2	22	29	15	5	1	1							75		
	G	10	26	22	10	1	1	0							70	145	16
IV	B	0	9	31	28	7	3	2	1						81		
	G	2	13	24	31	10	3	0	1						84	165	18
V	B		0	2	23	21	17	6	2						71		
	G			9	30	20	9	3							71	142	15
VI	B				9	23	34	14	5	5	1				91		
	G				13	15	13	11	3	2	1				58	149	16
VII	B					6	18	18	24	5	4	1			76		
	G					10	29	27	11	4	1	2			84	160	17
VIII	B				1	0	7	22	30	19	7	4	1	1	92		
	G				0	0	11	31	18	14	2	2	1	0	79	171	18
Total	B	2	31	62	76	62	80	63	62	29	12	5	1	1	486		
Total	G	12	39	55	84	56	66	72	33	20	4	4	1	0	446	932	
		14	70	117	160	118	146	135	95	49	16	9	2	1			
Percent of Total		2	7	12	17	13	16	14	10	5.	2.	1.	.2	.1			

TABLE 126
AGE-GRADE TABLE

Second Class Cities—
(Ages stated from birthday to birthday)

Ages— Grades—		6	7	8	9	10	11	12	13	14	15	16	17	18	Total		Percentage
III	B	1	2	54	44	18	13	2	3						137		
	G	2	7	58	46	19	2	0	1						135	272	15.9
IV	B			11	51	56	29	15	5	3	1				171		
	G			16	55	51	18	9	0	1	0	1			151	322	18.9
V	B			1	8	48	32	20	11	7	4	1			132		
	G			3	17	53	42	23	6	5	2				151	283	16.5
VI	B				1	11	40	33	19	14	6	1			125		
	G					14	59	45	27	13	3				161	286	16.7
VII	B					1	11	42	36	34	16	6	1		147		
	G						20	49	31	29	13	2	1		145	292	17.
VIII	B							11	39	31	22	12	2		117		
	G						1	13	51	46	23	6	2		142	259	15.1
Total	B	1	2	66	104	134	125	123	113	89	49	20	3		829		
Total	G	2	7	77	118	137	142	139	116	94	41	9	3		885		
		3	9	143	222	271	267	262	229	183	90	29	6		1714		
Percent of total		.2	.5	8.3	12.9	15.8	15.6	15.3	13.4	10.1	5.2	1.7	.3				

TABLE 127
DISTRIBUTION OF TEACHER ACCORDING TO SALARY AND EXPERIENCE

One-Teacher Schools Salary Per Month		$61 $70	$71 $80	$81 $90	$91 $100	$101 $110	$111 $120	$121 $130	$141 $150	Total Teachers
Experience Years	0	3	14	13	3					33
	1		1	6	10	2	1			20
	2—4			7	11	6	7	4		35
	5—10		1	2	1	0	1	2	2	9
	11—20									0
	20						1			1
Total	Teachers	3	16	28	25	8	10	6	2	98

TABLE 128
DISTRIBUTION OF TEACHER ACCORDING TO SALARY AND EXPERIENCE

Graded Schools, third class and Two-Teacher Schools.

Salary		$81 $90	$91 $100	$101 $110	$110 $120	$121 $130	$131 $140	$141 $150	$151 $160	$171 $180	N.D.	Total Teachers
Experience Years	0		1	1								2
	1	4	0	1	0	1						6
	2-4	1	6	1	3	2	1	1				15
	5-10	2	4	0	2	1	0	2		1	2	14
	11-20		1	1	2	4	0	1			1	10
	20											
	N.D.					4					0	4
Total Teachers		7	12	4	7	12	1	4	0	1	3	51

TABLE 129

DISTRIBUTION OF TEACHERS BY SALARY AND GRADE OF CERTIFICATE

One-Teacher Schools— Salary Per Month		$61 $70	$71 $80	$81 $90	$91 $100	$101 $110	$111 $120	$121 $130	$141 $150	Total
Certificate										
County	1	1	0	2	2	2	3	1	2	13
	2	1	1	8	8	0	2	3		23
	3		3	5						8
State	1 Yr.		1	6	0	1	2			10
	3 Yr.			1	3			1		5
	Life									
Normal Tr.		1	11	6	12	5	3	1		39
Total Teachers		3	16	28	25	8	10	6	2	98

TABLE 130

DISTRIBUTION OF TEACHERS BY SALARY AND GRADE OF CERTIFICATE

Third Class City, Graded and Two-Teacher Sihools— Salary Per Month		$81 $90	$91 $100	$101 $110	$111 $120	$121 $130	$131 $140	$141 $150	$151 $160	$171 $180	N.R.	Total
Certificate—												
County	1	1	4	1	3	4	1	1		1		16
	2	1	1					1				3
	3											
State	1 Yr.	1	1	1	1						1	5
	3 Yr.	1	1	0	2	1						5
	Life	1	1	0	1	1						4
Norm. Tr.		2	3	2	0	3						10
No Data			1	0	0	3	0	2			2	8
Total Teachers		7	12	4	7	12	1	4		1	3	51

TABLE 131

PERCENTAGE OF ACCURACY BY GRADES AND TYPE OF SCHOOLS FOR COURTIS ARITHMETIC TEST

(A.) Addition Grades Types of School	III	IV	V	VI	VII	VIII
1 Teacher	18.3	24.3	32.7	35.	43.	44.
2 Teacher	12.9	34.8	34.9	49.7	44.6	51.2
2nd Cl. City	25.5	41.2	39.8	52.7	56.9	62.8
3rd Cl. City	21.8	34.9	39.9	42.8	51.2	56.2

Subtraction (B)							
III	IV	V	VI	VII	VIII	No.	Pupils
12.3	33.1	38.2	53.4	59.4	71.5	1018	
6.7	35.8	51.8	62.2	76.	74.3	153	
24.7	41.4	53.5	64.2	77.5	75.6	932	
15.6	47.5	48.6	66.5	69.8	77.9	678	

(C.) Multiplication Types of School						(D.) Division					
1 Teacher		24.8	37.3	47.	53.4	58.6	14.	23.3	41.9	42.8	65.5	854
2 Teacher		22.5	44.7	45.7	52.2	72.7	10.5	22.9	43.7	52.6	72.4	134
3rd Cl. City		41.	51.3	54.	61.8	72.	22.	31.2	60.3	64.7	72.6	787
2nd Cl. City		31.2	43.2	63.4	63.2	71.2	10.6	35.4	67.3	69.8	75.6	598